

WHAT IS CLAIMED IS:

1. An apparatus for controlling an actuator having a moveable member and having a coil that influences movement of the member via a drive current to said coil, comprising:

a sensing unit for sensing a voltage corresponding to the voltage across said coil and  
5 providing a first signal corresponding to said sensed voltage and indicative of the velocity of said moveable member;

a generation circuit for providing a second signal indicative of a target voltage corresponding to a target velocity for said moveable member; and

a controller receiving said first signal and said second signal and responsive thereto  
10 for determining a compensation signal characterized as an analog type response regulated to said target voltage for effectuating said target velocity.

2. The apparatus of Claim 1, wherein said compensation signal is further characterized as an analog type response regulated to said target voltage with a resolution  
15 free of ripple about said target voltage.

3. The apparatus of Claim 1, wherein said compensation signal is characterized by a voltage step which is proportional to a remaining error with an infinite resolution approaching said target voltage over a constant time period.

4. The apparatus of Claim 1, wherein said controller includes a first node for receiving said first signal and said second signal and determining a difference therebetween and providing said difference to a proportional part and an integrator part;

said integrator part providing a third signal which is indicative of a mathematical  
5 integration of said difference and said proportion part providing a forth signal which is indicative of a multiple of said difference; and

said controller further having a summing node for receiving said third signal and said forth signal and responsive thereto for determining a summed signal which corresponds to said compensation signal.

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5. The apparatus of Claim 4, wherein said third signal is a voltage signal characterized by a voltage step which is proportional to a remaining error.

6. The apparatus of Claim 4 further including a cancellation circuit coupled with  
15 said sensing unit and said integrator part for canceling DC offset.

7. The apparatus of Claim 4 further including a cancellation circuit coupled with said sensing unit and operable for determining a DC offset and providing said DC offset to said integrator part for said mathematical integration for canceling said DC offset from said  
20 compensation signal.

8. The apparatus of Claim 4 further including a cancellation circuit coupled with said sensing unit and said integrator part and operable for determining DC offset of said sensing unit and said integrator part and providing said DC offset to said integrator part for said mathematical integration for canceling said DC offset from said compensation signal.

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9. The apparatus of Claim 8, wherein said DC offset is determined prior to sensing said coil voltage.

10. The apparatus of Claim 1 further including an amplifier unit having an input for receiving said compensation signal and responsive thereto for providing a corresponding current for application to said coil.

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11. An apparatus for providing a current signal to an actuator having a moveable member and having a coil that influences movement of the member responsive to the current signal, comprising:

a first input for receiving a first signal corresponding to the voltage sensed across said coil which is indicative of the velocity of said moveable member

a second input for receiving a second signal indicative of a target voltage corresponding to a target velocity for said moveable member;

a node for receiving said first signal and said second signal and determining a difference therebetween and providing said difference to a proportional part and an integrator part;

said integrator part providing a third signal which is indicative of a mathematical integration of said difference and said proportion part providing a forth signal which is indicative of a multiple of said difference; and

a summing node for receiving said third signal and said forth signal and responsive thereto for determining a compensation signal from a sum of said third and forth signal, said compensation signal characterized as an analog type response regulated to said target voltage for effectuating said target velocity.

12. The apparatus of Claim 11, wherein said compensation signal is further characterized as an analog type response regulated to said target voltage with a resolution free of ripple about said target voltage.

13. The apparatus of Claim 11, wherein said compensation signal is characterized by a voltage step which is proportional to a remaining error with an infinite resolution approaching said target voltage over a constant time period.

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14. The apparatus of Claim 11 further including a cancellation circuit coupled with said sensing unit and said integrator part for canceling DC offset.

10 15. The apparatus of Claim 11 further including a cancellation circuit coupled with said sensing unit and operable for determining a DC offset and providing said DC offset to said integrator part for said mathematical integration for canceling said DC offset from said compensation signal.

15 16. The apparatus of Claim 11 further including a cancellation circuit coupled with said sensing unit and said integrator part and operable for determining DC offset of said sensing unit and said integrator part and providing said DC offset to said integrator part for said mathematical integration for canceling said DC offset from said compensation signal.